

REMARKS

Claims 1-18, 21-29, 31-32, and 37-42, all the claims pending in the application, stand rejected on prior art grounds. This amendment is being made, in part, based on a telephonic/email communications between the Examiner and the undersigned attorney on May 11-23, 2007 in which the claim amendments were discussed and agreed to as overcoming the current prior art rejections. Furthermore, this amendment is a duplicate of the Examiner's Amendment, which the Examiner has indicated that he has prepared, processed, and entered along with a Notice of Allowance in this case. However, the Applicants are submitting this duplicative amendment because the response due date of the Office Action is June 9, 2007 (June 11, 2007 is the due date because June 9th falls on a Saturday) and because PAIR does not show that the Examiner's amendment had been entered or that a Notice of Allowance has been issued. Applicants have amended claims 1, 10, 24-28, 37-38, and 42. Applicants are not conceding in this application that the claims, which were rejected by the Examiner in the present Office Action, are not patentable, as the present claim amendments are only for facilitating expeditious prosecution of this application. Applicants respectfully reserve the right to pursue these and other claims in one or more continuations and/or divisional patent applications. Applicants respectfully traverse these rejections based on the following discussion.

I. The Prior Art Rejections

Claims 1-18, 21-29, 31-32, and 37-42 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Mirkin et al. (U.S. Publication No. 2004/0131843), hereinafter referred to as Mirkin '843 and Mirkin et al. (U.S. Patent No. 6,827,979), hereinafter referred to as Mirkin '979.

Applicants respectfully traverse these rejections based on the following discussion.

Mirkin '843 teaches methods of nanolithography and products therefor and produced thereby. In particular, the invention provides a nanolithographic method referred to as high force nanografting (HFN). HFN utilizes a tip (e.g., a scanning probe microscope (SPM) tip such as an atomic force microscope (AFM) tip) to pattern a substrate passivated with a resist. In the presence of a patterning compound, the tip is used to apply a high force to the substrate to remove molecules of the resist from the substrate, whereupon molecules of the patterning compound are able to attach to the substrate the form the desired pattern.

Mirkin '979 teaches a lithographic method referred to as "dip pen" nanolithography (DPN). DPN utilizes a SPM tip (e.g., an AFM tip) as a "pen," a solid-state substrate (e.g., gold) as "paper," and molecules with a chemical affinity for the solid-state substrate as "ink." Capillary transport of molecules from the SPM tip to the solid substrate is used in DPN to directly write patterns consisting of a relatively small collection of molecules in submicrometer dimensions, making DPN useful in the fabrication of a variety of microscale and nanoscale devices. The invention also provides substrates patterned by DPN, including submicrometer combinatorial arrays, and kits, devices and software for performing DPN. The invention further provides a method of performing AFM imaging in air. The method comprises coating an AFM tip with a hydrophobic compound, the hydrophobic compound being selected so that AFM imaging performed using the coated AFM tip is improved compared to AFM imaging performed using an uncoated AFM tip. Finally, the invention provides AFM tips coated with the hydrophobic compounds.

However, the Applicants' claimed invention, as provided in amended independent claims

1, 10, 24-28, 37-38, and 42 contain features, which are patentably distinguishable from the prior art references of record. Specifically, the amended claims generally provide the teaching of “a scanning probe microscope tip consisting of coating said tip with a layer of chemically-synthesized nanoparticles affixed to said tip such that a drop of solvent containing said nanoparticles is deposited onto a surface of a liquid subphase prior to said nanoparticles being affixed to said tip” and “wherein said tip is a non-magnetic silicon AFM tip” and “wherein said solvent comprises any of toluene, heptane, pentane, chloroform, and dichloromethane” and “affixing the nanoparticles to said tip, wherein said affixing consists of depositing said generally spherical nanoparticles from said liquid solution over said tip.” These features are neither taught nor rendered obvious by the prior art of record.

Paragraph [0047] of Mirkin ‘843 specifically teaches away from these features where it states, “For instance, the substrate can be coated with the resist by vapor deposition....Briefly, a resist (in pure form, solid or liquid, no solvent) is placed on a solid surface...” Accordingly, Mirkin ‘843 specifically provides that no solvent is to be used on the surface of the substrate (the resist in Mirkin ‘843 contains the patterning compound containing the nucleotides, which the Office Action holds as being analogous to the Applicants’ nanoparticles). Conversely, the Applicants specifically provide for a solvent containing the nanoparticles being deposited on a liquid subphase (solution) into which the tip of the microscope is dipped. Moreover, the Applicants note that all claims are properly supported in the specification and accompanying drawings. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

II. Formal Matters and Conclusion

With respect to the rejections to the claims, the claims have been amended, above, to overcome these rejections. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections to the claims.

In view of the foregoing, Applicants submit that claims 1-18, 21-29, 31-32, and 37-42, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 50-0510.

Respectfully submitted,

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/Mohammad S. Rahman/

Mohammad S. Rahman

Registration No. 43,029

Gibb & Rahman, LLC
2568-A Riva Road, Suite 304
Annapolis, MD 21401
Voice: (301) 261-8625
Fax: (301) 261-8825
Customer Number: 29154